

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-022023**Date Inspected:** 15-Mar-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Fred Von Hoff**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower Grillage**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above.

This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager was on site between the times noted above.

This QA Inspector observed ABF welding personnel Todd Jackson (#4639) monitoring the preheating equipment and verifying the temperature setting with an electronic temperature gauge.

South Tower leg:

Previously, QC Inspector Mike Johnson had informed this QA Inspector he had completed Ultrasonic Testing (UT) and accepted all the Complete Joint Penetration (CJP) welds. This QA Inspector had informed QC Inspector Mike Johnson that both QA Inspector Robert Mertz and this QA Inspector (Craig Hager) had performed UT on weld joint TG-S-P7-P8 and observed signals indicating a defect.

This QA Inspector met with QC Inspector Mike Johnson as requested to further discuss the Ultrasonic Testing (UT) results for weld joint TG-S-P7-P8. QC Inspector Mike Johnson stated he observed various UT signals and felt the signals were due to a gap between the plate and the backing material. This QA Inspector was previously informed by QCM Jim Bowers that QC Inspector Mike Johnson had performed and accepted the fit up inspections of these plates, which included this weld joint. This QA Inspector asked QC Inspector Mike Johnson if he had observed and documented an excess gap between the plate and backing during the fit up inspection. QC Inspector

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

Mike Johnson stated he did not document an excessive gap at this or any other location. This QA Inspector suggested that QC Inspector Mike Johnson re-inspect the area so both (QC and QA) could observe the UT signals. This QA Inspector observed QC Inspector Mike Johnson scan the weld from the P8 plate side, a UT signal which produced reject rating was obtained; the signal had a corresponding depth of approximately 22 mm and the indication was marked on the surface of the weld. This QA Inspector asked QC Inspector Mike Johnson if the suspected defect could be verified from the opposite side of the weld. QC Inspector Mike Johnson performed a UT scan from the opposite side, P7 plate and a UT signal which produced a reject rating was observed, the UT signal provided approximately (within 1-2 mm) the same depth and surface location on the weld face. This QA Inspector stated a general rule commonly used by UT technicians. When performing UT on a weld joint with backing material: if a UT signal can be verified from both sides of the weld then the signal is from a defect, if it can only be obtained from one side of the weld then it could be due to a gap between the plate and backing material. QC Inspector Mike Johnson informed this QA Inspector he would leave the weld marked to indicate a defect. QC Inspector Mike Johnson then informed this QA Inspector he had previously performed a UT inspection on the remaining weld length for 100% inspection of the weld length and that he had observed similar signals approximately 2-inches from the end of the defect just marked. This QA Inspector asked if he felt these signal were also from a defect and was informed the UT signals had approximately the same reject rating and the he (QC) now felt they were defects and that he would mark the face of the weld to provide the location and depth as required by the code (AWS D1.5-02).

At the end of the shift this date, this QA Inspector observed the weld (TG-S-P7-P8) had not been marked with the second defect and that the depth of the defect on the first marking had not been provided. This QA Inspector observed QC Inspector Mike Johnson was still present and asked why the second defect had not been marked; the previous discussion regarding the defect was approximately 6-hour earlier. QC Inspector Mike Johnson informed this QA Inspector at this time that he had changed his mind and that he would watch ABF welding personnel excavate the first defect marked and that if he saw a defect during the excavation process he would have them excavate the second area, but that if he did not see a defect during the excavation process he would not have them excavate the second area. This QA Inspector informed QC Inspector Mike Johnson a UT report documenting the defect in the weld or Engineering approval was required to excavate a weld, therefore he needed to make a decision to accept or reject weld TG-S-P7-P8 and inform this QA Inspector of his decision. QC Inspector Mike Johnson stated he was following direction provided by QCM Jim Bowers. This QA Inspector informed Lead QA Inspector Bill Levell of the conversations noted above.

East Tower leg:

This QA Inspector randomly observed ABF welding personnel Jason Collins (# 8128) performing Shielded Metal Arc Welding (SMAW) on the various fillet welds, by the end of the shift the fillet welds appeared to have been completed.

West Tower leg:

This QA Inspector randomly observed ABF welding personnel Sal Sandoval (#2202) performing SMAW on various CJP welds providing the remaining fill and cover passes. This QA Inspector observed the first thru fifth weld on the sequence map had been completed and that the sixth CJP weld had been started.

WELDING INSPECTION REPORT

(Continued Page 3 of 4)

North Tower leg:

This QA Inspector randomly observed ABF welding personnel Rick Clayborne (#2773) and Gilbert Peralta (#9453) performing SMAW to finish the first 4-5 mm of fill passes on the various CJP welds. Later this date, ABF welding personnel Rick Clayborne (#2773) and Gilbert Peralta (#9453) started welding on the PJP welds on outer skin plates A and D.

South Suspender Bracket:

This QA Inspector observed ABF welding personnel Richard Garcia (#5892) fitting the upper bearing plates on the South Suspender Bracket. This QA Inspector asked QC Inspector Fred Von Hoff if an approved drawing was available for the fit up, weld type/size and other details. ABF welding Foreman Frank Brajkovich stated he had a drawing and provided this QA Inspector and QC Inspector Fred Von Hoff a copy of what appeared to be a blown-up detail from another drawing, with red line details indicating 8 mm fillet welds. This QA Inspector asked if an approved drawing was available and was informed this was the only drawing. This QA Inspector randomly observed as this plate was fit-up and welded into place. This QA Inspector randomly observed a preheat temperature of 350°F was used, the welding electrode was E9018H4R and that QC Inspector Fred Von Hoff was periodically monitoring the work. The welding appeared to be completed on both plates by the end of the shift this date.

This QA Inspector was informed by QC Inspector Fred Von Hoff the welding parameters for the personnel noted above were within the required heat input range in the Welding Procedure Specifications (WPS) ABF-WPS-D15-1162-4 for the PJP welds, ABF-WPS-D15-1042A-4 for CJP welds and ABF-WPS-D15-F1206 for Fillet welds. Note the welding parameters are the same for all three procedures. This QA Inspector randomly observed the amperages and voltages of ABF welding personnel noted above and they appeared to be within the ranges in the WPS. This QA Inspector observed that both 3.2 mm and 4.0 mm diameter E9018H4R electrodes were being used and stored in separate heated storage containers. This QA Inspector also observed the 1-hour exposure limit for the electrodes appeared to be monitored and adhered to.

This QA Inspector had previously received Weekly Welding Report submittal; ABF-Sub-001536 Rev-46. This QA Inspector performed a review of the documents to determine compliance with the Welding Quality Control Plan (WQCP) submitted by the contractor, compliance with the applicable contract requirements and to determine if any Quality Control (QC) documents were missing. This QA Inspector documented the findings on a weld specific tracking log and informed QA Inspector Bill Levell of the findings. This QA Inspector placed the reviewed documents in the applicable files.

Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above there were no notable conversations.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Inspected By: Hager,Craig

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer